

MAY 1976

3p

Harlequin

Leisure Magazine of the United Kingdom Atomic Energy Research Group and Associated Organisations



**In this
issue**

HARWELL'S FIRST 30 YEARS — HARWELL DOUBLES

ORIENTEERING — DO-IT-YOURSELF — THE OLD BRIGADE

A TRIBUTE TO THE OLD BERKSHIRE FIRE BRIGADES, ETC.

HARDWARE
CALOR & GAZ AGENTS

PAINTS, TIMBER,
D.I.Y. TOOLS,

A. L. VICKERY
Tel. Drayton 497 & SON

Keys cut while you wait

- OFF THE OLD A34
HARWELL TO ABINGDON RD.
PARK YOUR CAR OUTSIDE

5 THE GREEN,
DRAYTON



BRACKNELL ENGINEERING CO. LTD.

MARKET STREET BRACKNELL BERKSHIRE RG12 4EZ

PROTOTYPE DEVELOPMENT

PRECISION ENGINEERS

"The technical skill and experience we have at our disposal is of the highest standard and no item will prove too difficult if within our machining capacity"

Tel. P.A. YOUELL, - Sales Director.

Contractors to H.M. Government DGI approval No12782

BRACKNELL 24343.

'Phone 19, Norman Avenue,
Abingdon 20360 Abingdon.

J.E. BUTLAND

A.C.I.I., M.Inst.P.S.
Insurance Broker
Mortgage Consultant
Investment Adviser

No charge for consultation at the above address or in your own home

The COMPREHENSIVE FINANCIAL SERVICE
in complete confidence

INVESTMENT Small and large

INSURANCE All classes of insurance transacted

LIFE Endowments with Profits

HOUSE PURCHASE Personal guidance

MORTGAGES arranged

Advice given on
BUILDING SOCIETY investments

Competitive quotations for
HOUSE, CONTENTS & CAR insurance by 1st class long-established companies

CARAVANNERS
SUPERMARKET
MIDLANDS
LARGEST



Thousands of Caravan Accessories
always in stock

AT CRAPPERS
379 COWLEY ROAD
TEL. OXFORD 778123

THINKING OF INVESTMENT?
In your own interest . . .

GO SOUTH

THE BUILDING SOCIETY
WITH THE BUILT-IN EXTRA

SOUTH OF ENGLAND BUILDING SOCIETY

LOCAL OFFICE
1A HIGH ST
ABINGDON
OX14 5BE TEL.
ABINGDON

20528

BRANCH MANAGER
A.D. GARNETT

SUPATAN

SPECIAL OFFER
99p.
+ 24p post and pack
Made to sell at £2.25

**for happy
summer holidays**

Here for the first time is a
FAMILY set of 5 sun products to
help you enjoy the golden days of summer.

On the back of each pack you will find directions
and advice on using each one.

The SUPATAN set contains:-

SUN CHEATER — to tan before you go

SUN TAN OIL — for a real golden tan

SUN PROTECTION — for sensitive skin, ideal for
children

MOISTURISER — to help replace the skin's
natural oils

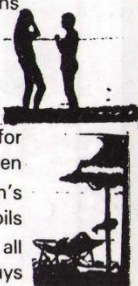
BEACH TAR REMOVER — a MUST for all
holidays

Complete and send the coupon below, with your
cheque, to: **STAFF FACILITIES (Holdings) LTD.,**
14 BONE LANE, NEWBURY, RG14 5SH

Please send Supatan sets at 99p
each + 24p postage & packing, total £1.23 per set.
I enclose cheque for

Name

Address



Harlequin

AERE Harwell, Didcot,
OX11 0RA
Telephone: Abingdon 4141

Vol. XXX No. 4 (120)

EDITOR D. A. TYLER

ED. ASSISTANT . . DR. R. B. JACOBI

SALES MANAGER . . J. D. GULLY

TREASURER R. WAKEFIELD

"HARLEQUIN" is dependent upon its readers for most of
the material published; its quality can only reflect the
quality of the material submitted. Only through your
support can it be developed to its full potential.

COVER PICTURE

Count the legs and divide by two, and there
is confirmation that here are seven players in
the annual Ladies vs. Referees match played
during Harwell's 7-a-side tournament.

WORTHWHILE SAVINGS —

The natural
answer to **RIISING**
FUEL BILLS

THROUGHOUT THE YEAR

SOLAR HEAT
BEAT INFLATION
INSTALL NOW!

For details and free quotation
return coupon to:

SOLAR ECONOMY, TANGLEY, Nr. ANDOVER
Tel. Chute Standen 621

Name

Address

Tel. No.





ORIENT

by J.W. ISAACS (Chemistry Division)

What is Orienteering? Is it a sport or a meal?

"Orienteering" is a term used to denote a competitive sport, developed in Scandinavia, whereby a person runs, walks or jogs from checkpoint to checkpoint, mainly through wooded areas, using a map and compass to find the way.

Today, not yet ten years since it "arrived" in this country, there are many people in Britain taking part in the sport. The name of one of the earliest clubs to become established here describes the sport exactly: "Mole Valley Map and Compass Foot-Running Society".

At Harwell a growing band of "bush bashers" has taken to the sport. Some run, some walk, some go round the course with their families, for this is a sport for all ages, sexes and degrees of skill. Many hikers and walkers enjoy orienteering, just as much as keen athletes, because it provides them with a means of learning and testing their skill at map-reading and provides fresh air and healthy exercise.

The main tools of the orienteer are his map and a compass. Many people have used the 1 inch Ordnance Survey maps; walkers and hikers have used the 1:25,000 sheets, which are much more detailed and of greater value to the walker, showing small footpaths, fences, streams, ditches and so on. For competitive orienteering special maps are used, based on the Ordnance Survey Map, usually of 1:10,000 or 1:20,000 scale, in which 1 cm equals 100 metres or 200 metres. These are coloured white where there are woods, in order to show clearer the detail that would otherwise be hidden, and yellow for open fields or moorland, with minor features not present on the Ordnance map carefully added by the orienteer mapper. These maps look peculiar at first, but you soon get used to them, and the detail shown makes it very easy to find the small features on which are the checkpoints, or "controls".

The controls are three-sided plastic markers coloured red and white; each one has a code mark and a 'pin punch'

for marking the control card you carry round with you.

The compass most commonly used is the 'Silva': it is cheap, light and can be used as a protractor. All orienteering maps have 'magnetic north' lines shown, so there is no problem with magnetic variation.

The skill of the orienteer is to transform the detail shown on the map into a picture of the ground he is moving over, so that he can find all the controls in as short a time as possible. This demands an ability to read the map, judge distances accurately and maintain direction in broken ground covered with trees. Of course, to win you must be able to do all this while running as fast as possible. However, one of the good things about orienteering is that it is not always the fastest runner who wins: unless you can find your way without error, no amount of fast running will make up for losing your way. If you make a major error, you

can lose many minutes just finding out where you are — there are no signposts in the forest!

So how do you go about orienteering? First find where a competition is being held. This can be done by joining a local club or going to a "come-and-try-it" event. When you arrive at the start you should be clad in old trousers, old shoes or studded boots of some sort, and an old shirt or pullover — one of the rules is that you must have leg and arm covering to guard against scratches from bramble, etc. A Silva or similar type of compass (cost £1.30p or so), a red biro and a plastic bag, preferably fairly stiff, such as the stiff envelopes you can buy (10p) at stationery shops. You report to "Registration", where you buy a map and a control card for the course of your choice. These range from "pram-pushers' courses" of a kilometre or so along paths to 5—10 kilometres and longer courses for experts. Choose one of 1½—5 kilometres as a start (the cost is usually 20p—40p). Then go



Orienteering is for everybody

EERING



along to the Pre-Start. Competitors are, of course, timed from start to finish and for each course one competitor goes off each minute. Once started, follow the coloured ribbon to the 'Master Maps', sets of maps stuck on pieces of hardboard and marked with the course number or letter — make sure you get the correct one! You will have been given at the Pre-Start a piece of paper with a list of descriptions of the controls that you will visit, and each one will have a code number or letter (usually two letters, such as XA, BP, AK). These codes will be found on the control marker and prove that the control is the one you have been looking for.

Mark on your map, using your red biro, the circles shown on the master map;

The Δ is where you are at the master maps and the double circle $\odot$ is the finish. The control markers will be found at the location indicated on the map by the centre of each circle. The controls are numbered and you go round in order, starting at number one. When you have carefully marked all the controls on your map you can set off to find the first one. Using your compass and any handy path, fence, stream, etc., navigate your way to the first control, check that it is the correct one, then use the pin punch to mark your control card in box number one; then continue, visiting number two next, and so on until you arrive at the finish. At the finish, hand in your control card: it will be matched up with a small portion torn off at the

pre-start by the officials, thus proving that you have returned safely. If you give up, either through boredom, exhaustion or anything else, do, PLEASE, HAND IN YOUR CONTROL CARD, otherwise the organisers will think you are lost and come and search for you. Take it easy; remember the map is strange and the scale may give you trouble, so watch for the paths, fences, valleys, pools and streams, and spend as much thought as you can on finding the way, but save some for the sights, sounds and smells of the forest you will be walking around. Later, if you enjoy the sport, you will be able to jog a little, and finally, who knows, you may become one of the elite who can run flat out for 1½ hours round a course most of us would find difficult to cover in a day.

One final word — note the time the organisers say they will take the controls away — usually three o'clock. Be back by then, or you will spend an awful long time looking!

I have listed some useful information at the end of this article. If you want to know any more — if I have whetted your appetite — ring ext. 4732 or drop me a line. Orienteers are very friendly, and you can get more advice by going along to an event and asking 'What's it all about?' Do ask those who have just come back, or an organiser — those who are warming up will not really be wanting to help; but in the 'local' afterwards you can buy me a drink and sit back and listen.

Books to buy:—

1. Know the Game: Orienteering, 30p. most bookshops
2. The Challenge of Orienteering, Gordon Pirie

Clubs to join:—

Reading Orienteering Club: If you live in the Wantage, Didcot, Reading Area
Thames Valley Orienteering Club: If you live in Abingdon or Oxford.

Readers are invited to write c/o "Harlequin".

DO-IT-YOURSELF

But it's NOT for me says Raymond Palmer

IT sometimes appears that almost the entire male population engages in what is called "Do-it-yourself". I am constantly awed by their expertise as they fix a new electrical point, repair a car or build an extra room on to their home. But I have learned by bitter experience that I belong to that minority who should engage in something called "Don't-do-it-yourself-whatever-you-do".

The men who enhance their homes by building a bar or a bookcase or who install a sauna bath or swimming pool, do it themselves in order to save money. I've decided against trying to do things like that myself for exactly the same reason.

My greatest difficulty, however, is trying to convince my wife that I don't belong to that vast section of the male population which can hammer happily and saw successfully. She constantly finds little jobs that need doing. When I object, she says: "It won't take you a minute". Considering what happens when I try to do these jobs myself, I must say that her faith in my ability is heart-warming — even if it is misplaced.

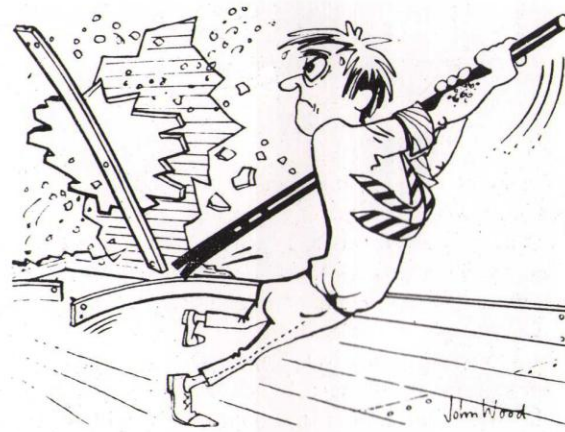
When we were planning to marry, homes were in even shorter supply than they are now. "Don't worry", said Joan, "you'll find somewhere". I did, too. Three unfurnished rooms over a shop near Regent's Park. It badly needed re-decorating, of course, but I could do that myself. At least, that's what Joan thought. I wasn't too sure.

On one wall of what was to be our lounge there was a defunct electric point, connected to the skirting board by a long piece of wood which covered the old wiring. I didn't want that to bulge under the new wallpaper, so I set about removing it.

Removing the electric point was no trouble at all. But the wooden covering over the old wires had been fixed as if it was meant to last forever. Finally I decided that what I needed was some leverage. Armed with a crowbar and a block of wood to provide the fulcrum, I levered.

The wood covering the old wiring came away from the wall — and so did a large area of plaster. But the covering still appeared to be fixed near its junction with the skirting board. I applied more leverage. There was a splintering noise and the wood covering the wires came right off the wall — and so did the skirting board.

Still determined not to be beaten, I armed myself with half a dozen eight-inch nails and proceeded to *nail* the skirting board back on to the wall. Somehow the skirting board became a lever (I never did find out where the fulcrum came from) and my hearty hammering at



... I applied more leverage ...

one end only succeeded in displacing the skirting board on the adjoining wall at the other end.

When I tried to fix *that* skirting board, it pushed the doorframe out of true. I solved that problem by taking the door off its hinges and sawing a triangular-shaped piece off the top.

Unfortunately, I sawed off the triangular piece the wrong way round. But I solved *that* problem by re-hanging the door upside down on the opposite side of the door frame to which it had hung before. The only trouble now was that the door handle, which had previously been about 3ft. from the floor, was now about 3ft. from the top of the door, and the housing for the lock was on the opposite side of the door frame at the wrong height.

Finally I got the room straight — with the help of friends, relatives and experts, all of whom were amazingly adept at doing things themselves. While they were sorting out the chaos I had caused, I was drafting my tenancy agreement. A friend advised me to get a solicitor to handle it, but I was determined to show there was something I could do myself.

The tenancy agreement I composed was a formidable document full of "whereas's" and "heretofore's" and parties of the first part and second part. But I had no trouble getting my erstwhile landlord to sign it. I told him he would only get the £50 he wanted for fixtures and fittings (ha!) when he had signed. Two days later (two nights later, to be precise) he disappeared, his moonlight flit financed by my £50.

A couple of weeks later a man came knocking on the door asking for my landlord. When I explained that he



... through the plasterboard ceiling ...

seemed to have skipped, the man asked who I was and what I was doing there. I obligingly told him. A couple of days later he was back with a writ alleging trespass and seeking possession of the premises. It seemed he represented my landlord's landlord and my landlord had no right to sublet.

Armed with my very legal looking tenancy agreement, I fought the case before a judge in chambers, in the high court, and in the county court. Still determined to do it myself, I spent hours poring over legal tomes and appearing in court to present my defence.

One way and another, the case dragged on for about three months before I lost. One judge remarked that I had presented my case very well, a compliment that was hardly worth the £200 court costs I had to pay to the other side. I had no costs of my own — I had even saved the fee of consulting a solicitor who would probably have told me the case wasn't worth fighting.

There have been plenty of other examples of my inability to do-it-myself since then, but none of them quite as obvious as those first few examples. There was the time, for instance, when I clambered into the loft armed with a pocket torch to fix a sticking ballcock on the main cistern.

I bent the arm of the ballcock too far and it broke off. There was now nothing to stop the flow of water into the tank. Somehow I dropped my torch into the tank and as I picked my way back across the loft in the dark



"It wasn't the aerial after all—it was a loss of picture in the studio."

to tell Joan to phone the plumber, I managed to put my foot through the plasterboard ceiling of the bedroom below.

Then there was the time I planned an imitation stone surround for the electric wallfire. I began sticking blocks of wood to the wall, intending to cover them later with cement or plaster. But the blocks kept falling off. Never short of ideas, I obtained some masonry nails to nail the blocks to the wall. The idea of the imitation stone wall ended with a bang. I drove a masonry pin through an electric cable buried in the wall, shorting the wires and cutting off the main supply.

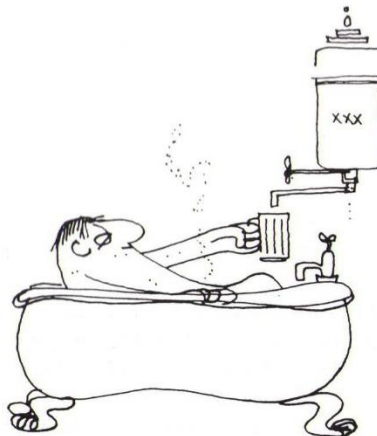
The one time I thought I had succeeded in overcoming my "Do-it-yourself" jinx was when I hung new wallpaper in the front hall and stairway of our maisonette. We left the front door open to help it dry out. Then we went out for the evening.



... "We're searching for intruders" ...

When Joan and I returned about 4 a.m. the following morning we found the house full of policemen. "What's going on?" I asked the sergeant in charge. "We're searching for intruders", he answered. "A patrolling policeman found the door open at 3.30 a.m."

But I haven't given up hope. I noticed the other day what may be the start of a new trend, a shop in my neighbourhood is now catering for people like me. It is an electrical repair shop and in the window it has a sign, saying: "Do it yourself — then bring it to us and let us finish it". Now, that's what I call good thinking!



A Tribute to the Old Berkshire Fire Brigades

On Saturday a most disastrous fire broke out at Harwell, a considerable village about six miles from Wantage, on the Wallingford road, about six miles west of the Didcot railway station. In consequence of the dry state of the weather and materials of the buildings, being

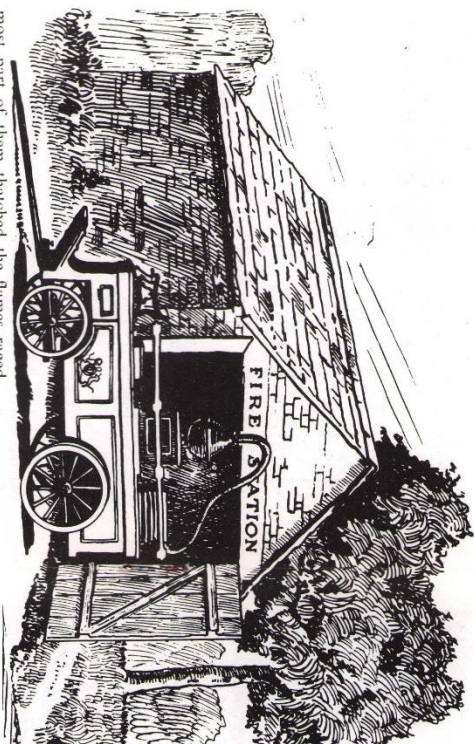
From Kelly's Directory for Lincolnshire for 1854. Reproduced by permission of LOUTH Chamber of Trade

**JOHN DALES,
RACOR AND SURVEYOR,
WESTGATE, LOUTH,**

HYDRAULIC RAMS,
LIFT-UPUMPS,
WATER CLOSERS, BATHS,
AND
ALL kinds of Building Materials
of good quality.

LIME
AND
BURNING STONE
supplied to Farmers at the Quarry
on the London-road, of the Best
Quality and on Liberal Terms.

WELLS & Co., Engineers and Millwrights, supply the above Fire Engines, LOATH



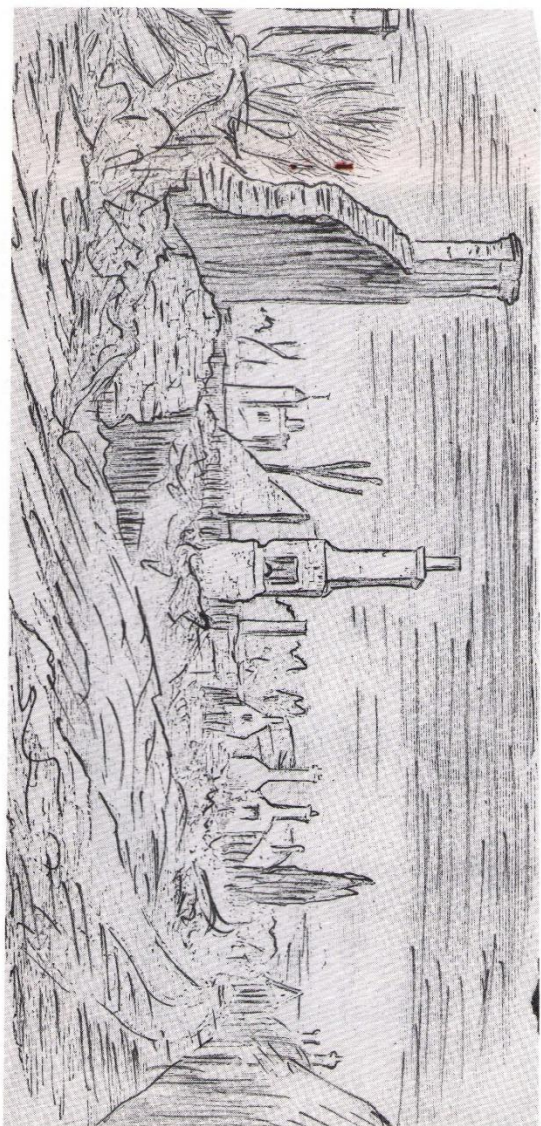
THE HARWELL FIRE STATION

A HARLEQUIN RECONSTRUCTION

The harness engine was brought on a wagon drawn by a team of horses, and manned by six or eight men, among whom was the late Dr. Richard Rice, then aged 26. One member of the team had a wooden leg (so the story

OBJECT—SEND A POST CARD."

The volunteer fire brigades were superseded by the present national organization, the ancient fire engine which had been stationed so long at Harwell and used for a century of fire fighting was taken charge of by the County Authority. At the present time, this relic of a former day is kept at Reading, and during the Festival of Britain Celebrations in 1951, it was taken back to its original home at Harwell where it was a source of much interest to the local inhabitants and to visitors.



WHEN HARWELL LOOKED LIKE HIROSHIMA - THE VILLAGE FIRE AS SKETCHED FOR "ILLUSTRATED LONDON NEWS

Harwell the first— 30 years

— As recorded by
'DIDCOT HERALD'



The former Tube Alloys team who gathered for a celebration lunch. From the left (back row) Mr. P. E. Brown, Mr. W. H. Denton, Dr. J. G. Woodgate, Prof. H. G. Kuhn, Mr. R. W. Mellroy, Mr. F. Sterry, Mr. W. H. Hardwick, (front) Dr. R. Berman, Mrs. H. Berman, Prof. N. Kurti, Dr. L. E. J. Roberts, Mrs. M. Roberts, Mr. K. D. B. Johnson and Dr. L. A. Woodward.

They get more worked up about science than anniversaries at AERE Harwell. So it was hardly a surprise that the research centre's 30th birthday this month was nearly overlooked.

It happened that an Oxford academic, Professor Nicholas Kurti, and a few former Oxford colleagues of the new Director, Dr Lewis Roberts, decided to hold a luncheon party to mark Dr Roberts' appointment.

The former members of the wartime team code-named Tube Alloys got together in the director's dining room at Harwell on February 9 — and amid the reminiscences it suddenly dawned on them that there was a double reason for celebration.

February 9 wasn't the precise day on which Harwell was founded. There was no precise day. The laboratory had its beginnings with the return to Britain of the various teams which had been working in nuclear research — including work on the first atomic bomb — during the second war.

But it was in February 1946 that Dr J. D. (later Sir John) Cockcroft, the first man to split the atom, flew from his laboratory in Canada to inspect the site of the former North Berkshire RAF station.

Dr Cockcroft was really the only serious candidate for heading the new "research and experimental establishment covering all aspects of the use of atomic energy," as the Attlee government described it.

But the team he headed at that time, which had been working on the joint Anglo-Canadian nuclear project at the Chalk River laboratory

in Ontario was only one of many research groups that merged to form the basis of Harwell.

British scientists returning from Los Alamos in New Mexico, where the bomb was finally developed, were encouraged by the Government to join Cockcroft. So were other teams returning from American universities and scientists working at existing Government establishments and universities in Britain.

One such team was Oxford Tube Alloys — the innocuous title masked a project on diffusion membranes for separating fissile material, intimately tied up with atomic weapons.

Prof Kurti was a member of this team, and he points out a curious irony about it that is not generally known.

Of the four original members of the team, three — Kurti, the late Sir Francis Simon, and Dr Heinrich Kuhn, (who was present at last week's reunion) were all central Europeans who had fled Hitler and become naturalised British subjects. The fourth, the late Dr H. S. Arms, was an American.

Because of their origins, none of this unique team was allowed officially to undertake secret war work. The result was that, in their determination to smash the Nazis, they set up their own project, in Oxford, to work on diffusion membranes. It was so successful that it soon attracted Government backing. When a team of top American scientists visited this project, and other similar ones at Birmingham, Cambridge and Liverpool, they went home with a great feeling of urgency about developing the first atomic bomb.

Tube Alloys, which carried out its work in the Clarendon

Laboratory and the now defunct chemistry laboratory of Jesus College, was one of several teams at the end of the war with knowledge of the nature of the atom and its amazing power.

It was Cockcroft's job to weld all these people into a unit, and Harwell was chosen because of its proximity to Oxford and London and its ready-made site.

That was in 1946. By August 1947 the first atomic pile (the forerunner of a power reactor) in Britain had been built in an old hangar. It was called GLEEP (Grapite Low Energy Experimental Pile). The second Harwell pile, BEPO (British Experimental Pile) was finished a year later. These two nuclear reactors formed the basis of Harwell's early research.

"We seemed to be able to do things a lot faster in those days than we can now," quipped one old stager.

Quite true — and among the reasons are more complex technologies, the pressures of environmental groups and economic problems. There is also the fact that Harwell is doing a far greater variety of work now.

Thirty years does not seem a long time in normal terms, but in the nuclear field it's a whole epoch. Consider what has happened, and in particular, happened to Harwell, in that time.

All the following aspects of nuclear technology in this country had their early origins at Harwell and were later hived off to become separate entities: reactor development (to Winfrith, in Dorset); nuclear accelerator development (to the Science Research Council's

Rutherford Laboratory at nearby Chilton); isotope production and sales (to Amersham); nuclear fusion research (to the

Culham Laboratory) and radiological safety (to the National Radiological Protection Board also at Chilton).

Harwell was the original breeding ground of all these functions. And even now they have gone, there is still enough original research to employ more than 1,000 scientists and engineers at Harwell.

Harwell has a very high birth rate of inventions. And almost as soon as they have been invented they are either licensed to industry for exploitation, or found to be so big that they are in need of separate "homes" to pursue their development.

Harwell in 1976 has a truly multifunctional role. The emphasis is still on the uses of atomic energy — not only for the power programme, but also in such applications as radiotherapy and radioactive tracer techniques for treating cancer and nuclear powered heart pacemakers.

But Harwell has numerous other lines which are only indirectly connected with nuclear research. It is concerned with improving the metal in tools and machines, electronic developments such as computer systems and undersea inspection devices and many advanced industrial testing techniques.

If Harwell had just left this body of knowledge "on the shelf" after it had been utilised by the nuclear power programme, society would have been very much worse off. What is more, by selling its knowhow to industry and other outside bodies, Harwell pays around half of its annual running costs.

And its function remains as important — and as clear — as ever: to provide research in support of our nuclear power programme and for the betterment of all aspects of life

1956



SIR WINSTON CHURCHILL AT HARWELL.

BEHIND SIR WINSTON WALKS SIR EDWIN PLOWDEN, CHAIRMAN OF THE U.K.A.E.A.; WHILE AT HIS SIDE SIR JOHN COCKCROFT LEADS THE WAY THROUGH BUILDING 220. IN THE FRONT, FROM LEFT TO RIGHT, ARE SEEN DR. SCHONLAND (DEPUTY DIRECTOR) AND DR. FINNISTEN (CHIEF METALLURGIST). BEHIND THE DIRECTOR WALKS LORD CHERWELL. OVER-SHOES ARE WORN TO PREVENT THE PICKING UP OF RADIO-ACTIVE DUST.

FROM "HARLEQUIN" ARCHIVES



1966

Abingdon Borough Councillors, many of them working at A.E.R.E. being welcomed by Mr. T. B. Le Cren, General Secretary, on a goodwill visit to the Establishment. Although some have since retired from Council work, others have come forward and been successfully elected to office. There are challenging times ahead, and to implement the changes people of the highest calibre will be required.

names which make news

It is not for "Harlequin" to correct an error in another Harwell publication, particularly one it holds in great esteem, but we hope that the paragraph below, which Jim Humphreys of Culham Laboratory was quick to notice, was not seen by the R.S.P.C.A. —



**WE
GOOFED!**

"HARWELL's expertise in carbon fibres and other composites will feature on the Department of Industry stand at the 1976 Plastics Industries Exhibition Arthur Eymore Materials Development Division (who borrowed a clean overall for the purpose of the photograph) checks the winding of a resin wetted carbon fibre filament on to a mandrill, on which it is later cured."

Harwell Bulletin

"Harlequin" is not immune from errors, and in the last issue transposed the names of G. Fowler and W.G.L. Brownrigg under the 30-year photograph. In a different context "Harwell Bulletin" spelt Mr. Fowler's name wrongly, and again in a correction. We apologise to both and double-check this paragraph.

MONEY SAVING IDEA WINS SUGGESTION SCHEME AWARD - a new design for the lamp units used in lead active-handling cells.

On 2 April a cheque for £160 was presented to Mr. Jim Duffin, Engineering Division, by Mr. Pat Byrne, Division Head.

Mr. Duffin's suggestion was considered to be a very good example of using simplicity in design. It will result in a saving of around £100 for each lamp unit by comparison with the previous design and improve ease of maintenance and other work during operation. The unit had already made significant

mān'drel, -il, n. (In lathe) axis to which work is fixed while turned; cylindrical rod round which metal or other material is forged or shaped; (dial.) miner's pick. [?]



mān'drill, n. Large, hideous, & ferocious baboon. [prob. MAN¹ + DRILL²]

savings in the refurbishing of one facility and the costs of cells now in the planning stage would be reduced.

Jim Duffin, a well-known figure in the active handling areas, joined HARWELL in 1957 as a skilled craftsman, and in 1960 became supervisor of the B.393.6 workshops. From 1970-74 he supervised the Cell Line operations, and with the reorganisation of the Section in 1974, was made supervisor of workshops for both B.393.6 and B.459.

Your idea, sent to the Secretary, Suggestions Scheme, Personnel Department, Building 329, can also win an award. All ideas on productivity and safety are carefully considered.



Left to right: Bill Littleford, Ken Phillips, John Andrews, Jim Duffin, Wally Slater, Peter Chaplin, Paul Smith, Dave Partridge.



HARWELL DOUBLES



Twins occur, on average, about once in every 80 births, and the tendency is often inherited through the Mother's side of the family; but this is confirmed in only one of the cases here.

About one out of three sets of twins will be identical, necessarily of the same sex, blood group and eye colour. Their finger prints will be different; but to the undiscerning, and to those not expecting to see doubles, they are often a source of embarrassing situations that are afterwards taken in good humour by all concerned.

Left to right: Back: Helen and Pat Downing, of Typing Pools, 465.1 and 404, are seen each month at the New Coronet, Didcot, where they share an interest in free-style wrestling.

Front: Monica Wreyford of Computer Science Systems and Joan Maskell of Metallurgy Division. Both 4 feet 10½ inches, they have husbands of 6 feet and 6 feet 1½ inches respectively.

It is not easy, but in both cases, there seems good reason for getting the names right! This photograph will help.



TWENTY YEARS' SERVICE

Standing (left to right): M. Brandon, H.A. Cole, H. Gregson, C.F. Bartlett, M.S. Jones, P.W.B. Blewitt.

Sitting (left to right): J.M. Powell, A.E. Forbes, R.W. Burridge, R.L. Stevenson.

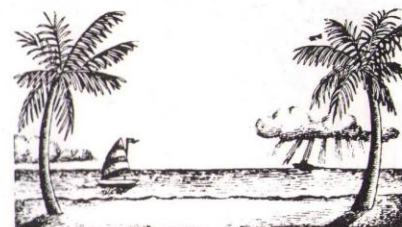
"HARLEQUIN", G159, Bldg. 77,
A.E.R.E., HARWELL.

The answers to the clues read the same, across and down. When completed an essential part to life can be found on 1 diagonally

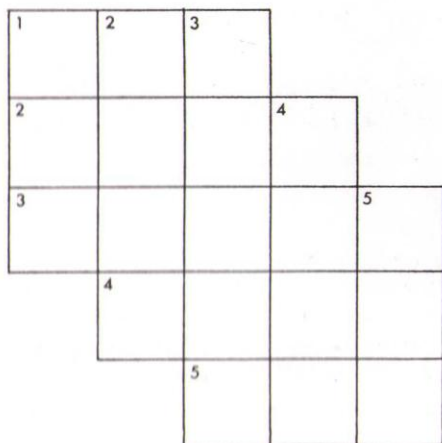
TRIPLE WORD SQUARE

Clues

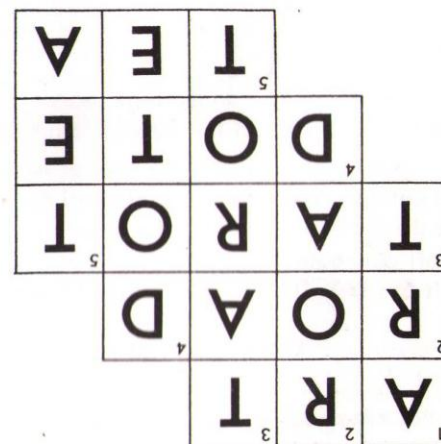
1. You may think a picture of a rat is this
2. Dora may travel on this
3. A card for a fortune-teller
4. Adore the little speck in the east
5. It's high time for cucumber sandwiches



Answer:



"Well, if I'm always such a disappointment to you why do you always give me such tough assignments — like typing, for instance."



WEL-SHOD

SHOPPING CENTRE,
AERE HARWELL.

SHOE REPAIRS
3-DAY SERVICE

AGENCY FOR
LAUNDRY &
DRY CLEANING

SEE OUR SELECTION OF
LADIES & GENTS SHOES,
SANDALS, SLIPPERS &
ALL LEATHER GOODS

ARE YOU
BUILDING
EXTENDING

DECORATING
OR MODERNISING
YOUR HOME?

T. H. FIDLER & CO. LTD.,

Bone Lane Industrial Estate, Newbury, Berkshire
Tel: Newbury 4898 & 4899

WE CAN SUPPLY & ERECT

JOINERY MANUFACTURERS · MERCHANTS

NORMAN FRIZZELL

Life & Pensions Ltd.

Appointments can be made
for interview in Building 159
through Ext. 2514

35 Station Road,
Reading, Berks. RG1 1LS
Tel: 585678



MOT'S WHILE YOU WAIT

FAULKNER & SON LTD 55 WALTON ST

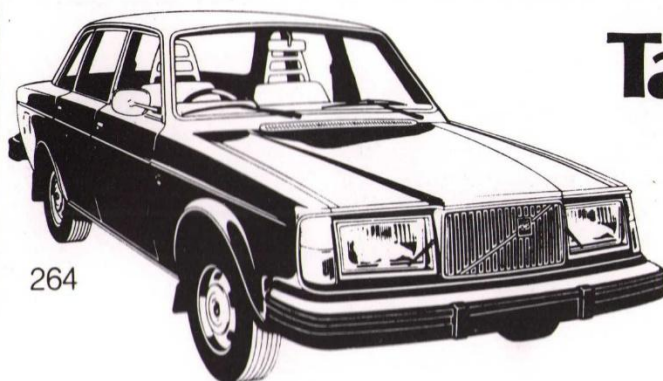
TEL: 57279

Spares and Service
Accessories

Stock the latest models of
NORTON, HONDA,
SUZUKI and MZ
MOTORCYCLES

PUCH, GILERA, KTM,
BATAVUS and HONDA
MOPEDS

**Oxford's Leading
Motor Cycle & Moped
Specialists!**



264

The specification of this fine car
is second to none for the price.
Why not give yourself a treat
by arranging a test drive today?
You deserve it!

Take good care of yourself...

Some things come hard in life.
So when you make it to the top,
you deserve your just rewards.

To assist you in this matter we
are only too happy to be able to
expand on the extensive qualities
of the top of the range from
Volvo . . . the Volvo 264.

...you deserve it.

Phone

John Lidsey for a demonstration -

or just drop in to

LIDSEY Service Station

Wantage 2493

Challow Road
WANTAGE

**A.E.R.E.
members!**
**Save money
with special
insurance terms
from**

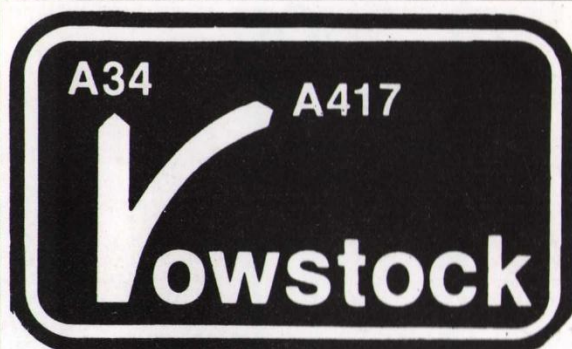
**Eagle
Star**

We give special discounts which help you cut insurance costs and we back up our wide range of policies with a fast, helpful service that is second to none. Get in touch *direct* with your local Eagle Star office. You'll find the address in the telephone directory.

Eagle Star Insurance Group



Branches *almost* everywhere



CORNER GARAGE

MORRIS
RETAIL



MG
DEALERS

NEW CARS AVAILABLE FROM STOCK OR EARLY DELIVERY — ALL WITH SUPERCOVER

LEYCARE SERVICING

UNIPART STOCKISTS

M.O.T. TESTING STATION

ALWAYS A GOOD SELECTION OF USED CARS WITH 6 MONTHS PARTS & LABOUR WARRANTY

Buy with confidence

ROWSTOCK, HARWELL
Tel. Rowstock 336

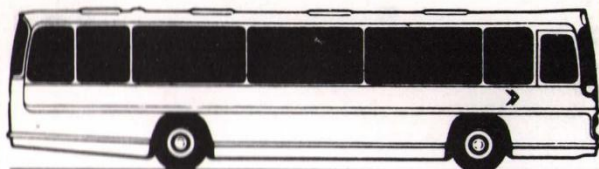


**OXFORD
SOUTH MIDLAND**

Associated with the National Bus Company

The leading Bus & Coach operator in Oxfordshire

- * Regular bus services throughout the City and the County
- * Range of cheap tickets available — to cut the cost of commuting — and for days out
- * Attractive Summer Excursions and round-the-City tours
- * Coaches and buses for private charter
- * Carfax Travel Bureau for all holiday needs
we are at YOUR service



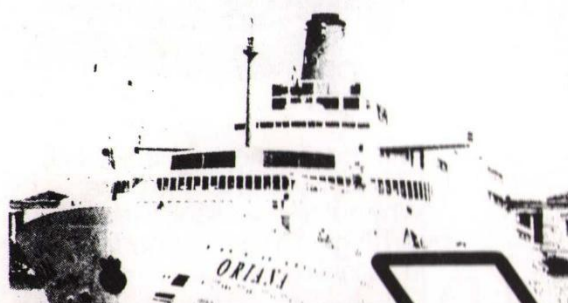
Head Office
395 Cowley Road
OXFORD OX4 2DJ
0865-774611

Travel Office
Bus Station
Gloucester Green
OXFORD OX1 2BU
0865-41149

Travel Bureau
138 High Street
OXFORD OX1 4DN
0865-42263

P&O Cruises ¹⁹⁷⁶

Half a dozen holidays in one.



BRYAN TRAVEL

122a BROADWAY DIDCOT
OPPOSITE BARCLAYS BANK

PHONE
815334